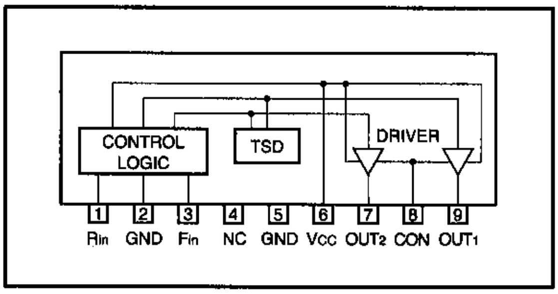
Reversible motor driver
BA6418N

The BA6418N is a reversible-motor driver with a maximum output current of 0.7A. Two logic inputs allow four output modes : forward, reverse, stop (idling), and brake. Because logic and power sections have separate ground pins, the IC can drive speed-variable, reversible motors by connecting an electronic governor circuit.

●Features
1) Surge-absorbing diodes are built in.
2) Small standby circuit current.
3) Wide range of operating voltage. (4.5 ~ 15V)
4) Interfaces with TTL devices.
5) Built-in thermal shutdown circuit.

●Block diagram



●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	18	V
Power dissipation	Pd	800*	mW
Operating temperature	Topr	−20~60	℃
Storage temperature	Tstg	−55~125	℃
Maximum output current	Io	0.7	A

* Reduce power by 8 mW for each degree above 25℃.

●Input/output truth table

3pin (IN)	1pin (IN)	7pin (OUT)	9pin (OUT)
H	L	L	H
L	H	H	L
H	H	L	L
L	L	OPEN	OPEN

Note : HIGH level input is 2.0 V or more
LOW level input is 0.8 V or less

●Electrical characteristics (Unless otherwise noted, Ta=25℃, V_{CC}=9V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit voltage range 1	V_{CC1}	4.5	—	15	V	Pin 6-pin 2.5 voltage
Circuit voltage range 2	V_{CC2}	4	—	15	V	Pin 6-pin 8 voltage
Circuit current 1	I_{CC1}	18	34	50	mA	1pin "H", 3pin "L" or 1pin "L" 3pin "H" $R_L=\infty$
Circuit current 2	I_{CC2}	34	52	70	mA	1pin "H", 3pin $R_L=\infty$
Standby circuit current	Ist	—	—	1.5	mA	1pin "L", 3pin "L"
HIGH level input voltage	V_{IH}	2.0	—	—	V	
LOW level input voltage	V_{IL}	—	—	0.8	V	
HIGH level input current	I_{IH}	—	93	135	μA	V_{IN}=2.0V
Output saturation voltage	V_{CE}	—	1.2	1.6	V	Io=200mA Sum of output transistor high- and low-side voltages

●Input/output circuit (Equivalent circuit)

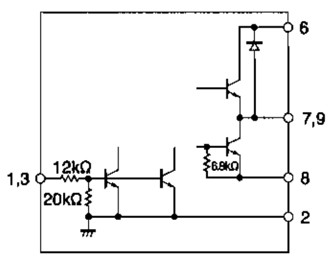


Fig.1

●Application example

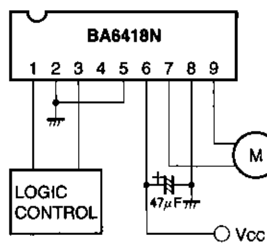


Fig.2

●Temperature dissipation curve

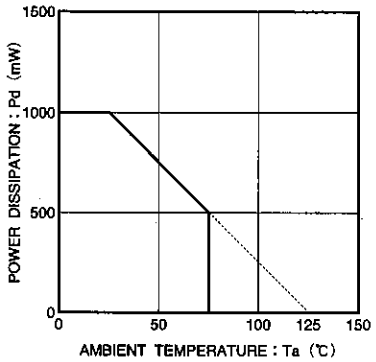


Fig.3 Temperature dependence of power dissipation curve

●Operation notes

(1) To improve the reliability of operation, make sure to go through the stop (idling) mode when reversing the motor rotational direction.

(2) Control pins

Voltage should never be applied to the control pins (pins 1 and 3) from the logic circuit when the V_{CC} voltage is not applied to the IC. Similarly, the voltage of each input pin should not exceed any applied V_{CC} voltage.

(3) Power supply impedance

Suppress the power supply line impedance to low levels, otherwise output oscillation may occur.

(4) Current consumption

The ratio of current consumption (I_{CC1} versus I_{CC2}) is 1 : 2 for the logic section GND (pins 2 and 5) and the power section GND (pin 8).

(5) Ground pin potential

Keep the potential of the ground pins (pins 2 and 5) lower than the potentials of the other pins.

(6) Minimum operating voltage applied between power supply (pin 6) and COM (pin 8)

The minimum operating voltage applied between these pins is 4V at an ambient temperature of 25℃, but the voltage increases by 8mV (typical) for each degree below 25℃. Keep in mind this negative temperature dependence when setting the voltage at low ambient temperatures.

(7) Thermal shutdown circuit

When the thermal shutdown circuit is activated at the IC junction temperature of about 175℃ (typical), all driver outputs are turned OFF. There is a temperature difference of about 15℃ (typical) between the temperatures at which the circuit is activated and deactivated.

(8) To eliminate motor noise, connect a capacitor between OUT_1 (pin 9) and GND and between OUT_2 (pin 7) and GND. Alternatively, connect a capacitor between OUT_1 and OUT_2, and also a diode between OUT_1 and GND and between OUT_2 and GND (see Fig. 4).

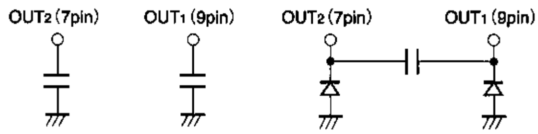


Fig.4

● Electrical characteristic curves

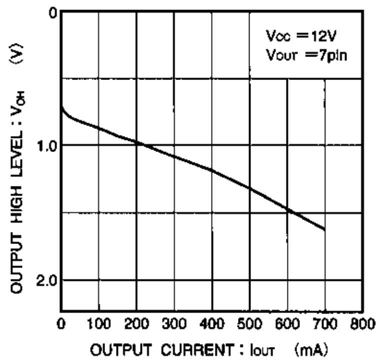


Fig.5 HIGH level output voltage vs. output current

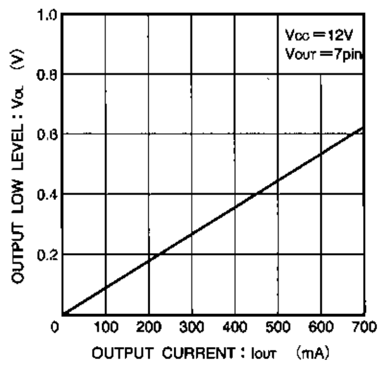


Fig.6 LOW level output voltage vs. output current

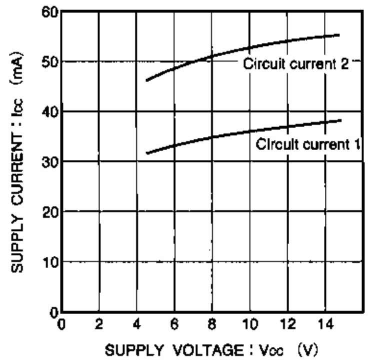


Fig.7 Circuit current vs. supply voltage

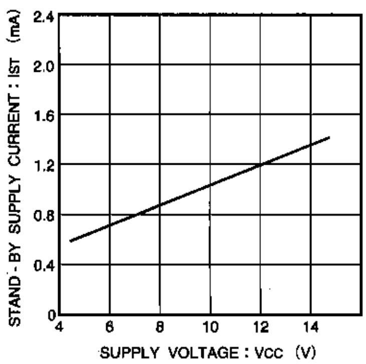
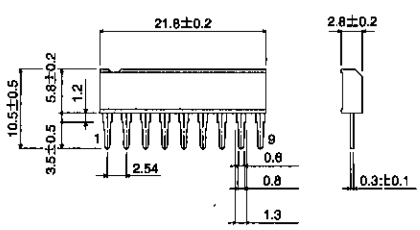


Fig.8 Standby circuit current vs. supply voltage

● External dimensions (Units: mm)



SIP9